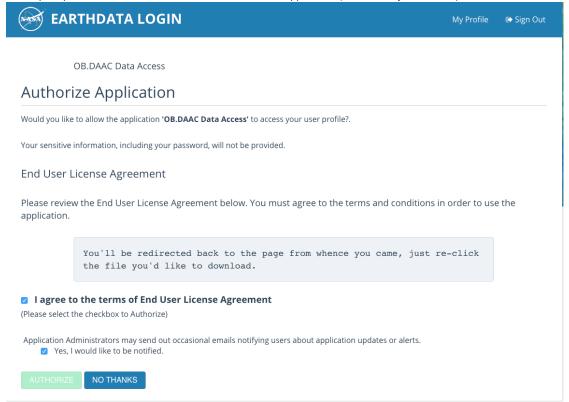# ECHO Form Tool

Update

it appears that MERIS may no longer be using the Form tool or ECHO groups to manage access to their data. Today, clicking on a download link as a new user brings up a URS application authorization page with a long app specific EULA to agree to. After agreeing and approving the application, the download begins with the user not yet being registered with ECHO or associated with the MERIS group. The writeup below describes the workflow previously, when the form tool was in use.

Current Workflow

MERIS (MEdium Resolution Imaging Spectrometer) data comes from the European Space Agency (ESA) which dictates additional user information requirements prior to accessing their data. This additional information includes an area of interest and executive summary for the usage of the data as well as acknowledgment of data usage terms. In order to accomplish this, The ECHO Form Tool collects this information from a user and then adds that user to the MERIS Registered Users group.
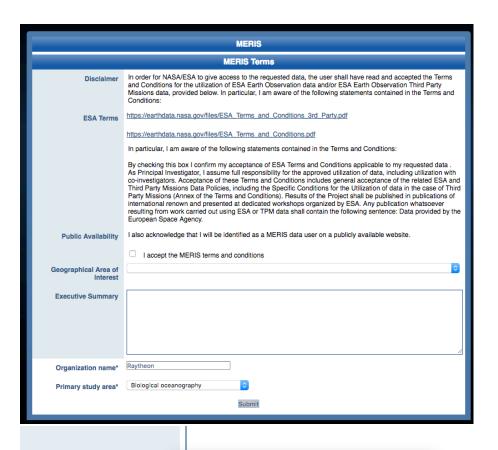
The current use case for accessing MERIS data as a new user involves both URS and the echo-form-tool as follows:

1. Click on a MERIS data download link (e.g. one of the links on this page: http://oceandata.sci.gsfc.nasa.gov/MERIS/L1/2002/119)
2. User is prompted to log in to URS (if not already logged in)
3. MERIS data provider checks the groups which the user belongs to.
4. User is prompted to authorize the "OB.DAAC Data Access" application (if not already authorized)

> NOTE: When I tested this, I was presented with a blank page after authorizing and had to return to the file listing and click the file link again to proceed to the next step.
5. If the user does not belong to the "MERIS Registered Users" group, an ECHO Form Tool 'referral' is generated in ECHO,
6. The user's browser is redirected to the ECHO Form tool URL (e.g. https://api.echo.nasa.gov/form-tool/echo_forms/<id> where <id> is the generated referral ID)
   a. You can try this link to see the form (though the referral may be cleaned up and become unavailable at any point): https://api.echo.nasa.gov/form-tool/echo_forms/be0c69c0-7a6c-11e6-a30a-0050569fd1b1
7. The user enters information in the form as displayed below (note the screens hots showing the options for Area of Interest and Primary Study Area)

MERIS

MERIS Terms

Disclaimer	In order for NASA/ESA to give access to the requested data, the user shall have read and accepted the Terms and Conditions for the utilization of ESA Earth Observation data and/or ESA Earth Observation Third Party Missions data, provided below. In particular, I am aware of the following statements contained in the Terms and Conditions:
ESA Terms	https://earthdata.nasa.gov/files/ESA_Terms_and_Conditions_3rd_Party.pdf
	https://earthdata.nasa.gov/files/ESA_Terms_and_Conditions.pdf
	In particular, I am aware of the following statements contained in the Terms and Conditions:
	By checking this box I confirm my acceptance of ESA Terms and Conditions applicable to my requested data . As Principal Investigator, I assume full responsibility for the approved utilization of data, including utilization with co-investigators. Acceptance of these Terms and Conditions includes general acceptance of the related ESA and Third Party Missions Data Policies, including the Specific Conditions for the Utilization of data in the case of Third Party Missions (Annex of the Terms and Conditions). Results of the Project shall be published in publications of international renown and presented at dedicated workshops organized by ESA. Any publication whatsoever resulting from work carried out using ESA or TPM data shall contain the following sentence: Data provided by the European Space Agency.
Public Availability	I also acknowledge that I will be identified as a MERIS data user on a publicly available website.
	☐ I accept the MERIS terms and conditions
Geographical Area of Interest	[▼]
Executive Summary	[ ]
Organization name*	Raytheon
Primary study area*	Biological oceanography [▼]
	Submit

Organization name*

Primary study area*

Submit

✓ Select a primary study area
Air sea interaction
Atmospheric aerosols
Biogeochemical dynamics
Biological oceanography
Clouds
Cryospheric studies
Geophysics
Global biosphere
Human dimensions of global change
Hydrologic cycle
Land processes
Physical oceanography
Polar processes
Radiation budget
Sea ice
Tropospheric chemistry
Upper atmosphere composition
Upper atmosphere dynamics
Other

NOTE: When I tested this, after submitting I was directed back to the file listing page and had to click the file link again to commence the download.

8. The form selections are sent back to the ECHO Form Tool which persists the selections to the database and adds the member to the MERIS group. MERIS can then hit the ECHO form API to obtain the provided user information (i.e. area of interest, executive summary).

A few things to note from above:

- The user is Essentially agreeing to two separate EULAs (in the URS authorization and the ECHO Form).
- There seems to be some breakdown in the process keeping it from flowing smoothly; the user has to return to the file listing multiple times (see the notes above).
- Theoretically, the form tool will allow any valid ECHO form to be presented to users. The form tool itself does not actually parse the form selections but rather saves them in the ECHO Form Tool database where the data provider can access them.
- The Data Provider user creating the referrals must belong to the 'MERIS Form System Group' which grants them elevated access to user information in ECHO/CMR.
- MERIS has reported that the group membership check (presumably a tokens/current_sids request) is unreasonably slow, so they are caching this information.

Basic Requirements

From the above description of the current workflow, here is a more distilled version of the requirement.

"As a provider, I would like to obtain additional information from users, and/or require them to acknowledge a EULA before granting them access to my data"

This could be further abstracted to "*As an application owner...*".

Moving forward

MERIS has indicated that they are happy to migrate off of the form tool as long as there is another solution for them to obtain the required information.   The existing URS EULA page is a partial solution, but they need a way to obtain the additional fields (field, region of interest, organization, etc).   From my correspondence with them: "*With /oauth/authorize, we can force them to fill in their study_area, but not the region they're interested in or whatever other arbitrary information we might require for metrics, etc. ... a real advantage of the form tool is that we don't store the data ourselves (be it on our machines or in a "proprietary," non-standard way), so EMS, or whatever wants that information, doesn't need us to get it.*"

It seems that the best solution would be to augment the URS application authorization/EULA page in such a way that it can request application specific fields from the user which will either be sent to the application or stored in some additional section of the user's profile. We still probably need some way to automate the addition of authorized users to the ECHO/CMR group, but we can get rid of the user input portion of the form tool

at least.

ECHO/CMR Groups

A Group (or Access Group) is a grouping of users which can then be used to grant access to data or functionality. All ECHO/CMR Access Control Lists grant access to groups rather than directly to users. A group can either belong to a provider or be a system group which is not linked to a provider. A group has a name, description, and list of associated members. A user can be a member in any number of groups.

Groups have traditionally been managed and maintained in the ECHO Kernel via the ECHO SOAP and REST APIs. However CMR is in the process of reimplementing this as 'Access Groups' (along with reimplementing Access Control Lists). The CMR Access Groups functionality will be accessible via a new CMR endpoint and will also become the backend for the legacy ECHO APIs in the near future. The design for access groups in CMR can be seen at Access Group Design.

ECHO Forms

The form displayed to the user is specified via an 'ECHO Form'. ECHO forms are XML documents conforming to the API specified at https://earthdata.nasa.gov/files/ECHO_Forms_Specification_0.pdf which define user input controls and an XML structure to hold user selections. The ECHO forms rendering library is open source and available at https://github.com/nasa/edsc-echoforms.

ECHO Form Tool Design

The Form tool contains the following resources and associated URL endpoints.

Referrals: The provider creates a referral for each user it would like to add to a group. The referral contains:

- Token of referring user
- Option definition ID identifying the ECHO form to display to the user (the ID is the option definition GUID in ECHO).
- GUID of user to be referred (GUID from ECHO database)
- GUID of group to add the user to.
- URL to redirect the user to after completing the form.

ECHO Forms: When passed a referral ID the ECHO forms endpoint displays the form specified by the referral and accepts user input, then submits the form output to the Form Selections endpoint.

Form Selections: Takes the form output and referral ID and adds the user to the group specified in the referral, saves the form selections to the database, and deletes the referral. The provider can then view the form selections using this endpoint.